

Appl. No. 10/786,018
Reply Dated December 21, 2007
Reply to Office action of October 2, 2007

AMENDMENTS TO THE DRAWINGS

Please replace FIGS. 1 to 7 with the seven (7) replacement sheets showing FIGS. 1 to 7 of the Appendix provided herewith.

REMARKS

This letter is responsive to the office action dated October 2, 2007.

Applicants thank Examiner Recek for noting the clerical errors in the previously filed Information Disclosure Statement. A Supplementary Information Disclosure Statement is being filed herewith for further consideration.

Replacement drawings have been submitted, in which the originally filed drawings have been formalized for publication purposes. No new matter is added.

Claims 7-10 and 13-14 have been cancelled, without prejudice.

Independent claims 1, 15 and 17 have been amended to incorporate features described in FIG. 6 and the accompanying description at paragraphs [0080] to [0083] and [0087] to [0088]. Claims 2, 3, 6, 11 and 12 have been amended for clarity in view of the amendments made to the independent claims 1 and 11. No new matter has been added.

Accordingly, claims 1-6, 11-12, and 15-17 remain in this application.

Rejections Under 35 U.S.C. 102

In the office action, the Examiner rejected claims 1-10 and 13-17 as originally filed under 35 U.S.C. 102 as being anticipated by Stelting, U.S. Patent Publication No. 2004/0030740 A1). Applicants respectfully traverse the rejection.

As the Examiner will appreciate, a single prior art reference anticipates a patent claim if it expressly or inherently describes each and every limitation set

forth in the patent claim. Trintec Indus. Inc. v. Top-U.S.A. Corp., 63 USPQ2d 1597, 1599 (Fed. Cir. 2002).

Independent claim 1 has been amended, and specifically requires that the method of automatically aggregating web services in generating a user interface comprises:

providing said one or more user interfaces, wherein in use, at least a subset of said plurality of web services is invoked using input data obtained through said one or more user interfaces, and wherein output data is displayed through said one or more user interfaces from said at least a subset of said plurality of web services;

monitoring input data obtained and output data displayed through one or more user interfaces to identify patterns in said input data and said output data that suggest that a first web service of said plurality of web services is obtainable from output of a second web service of said plurality of web services, and

generating a new user interface for said computing device after identifying said patterns, wherein in use, the first web service is automatically invoked using output data from the second web service when the second web service is invoked through said new user interface.

Similar features are recited in independent claims 15 and 17. These features are not disclosed in Stelting, as noted below. Accordingly, the Examiner has yet to satisfy the burden of proof required to reject amended independent claims 1, 15 and 17 as being anticipated by Stelting.

To expedite prosecution and not for reasons pertaining to patentability, the Applicants have amended the independent claims to recite features of certain specific embodiments. In the Applicants' embodiments as defined in the amended claims, web services that are capable of being "aggregated" are identified by monitoring input data obtained from use of a user interface and output data displayed in that user interface to identify patterns in the input data and the output data that suggest that an input to a first web service is obtainable from the output of a second web service. The aggregation is then reflected in a new user interface also for use in consuming web services, the new user interface being generated after identifying those patterns. Specific examples of patterns that suggest that an input to a first web service is obtainable from the output of a second web service are recited in claims 11 and 12.

Accordingly, the functionality of the new user interface is a direct result of a user's actual consumption of particular web services through a user interface. The aggregation is driven by the consumption of individual web services by the user, where relationships between web services can be inferred from patterns in monitored data (see e.g. paragraph [0061] of the Applicant's description). It is only after that individual web services are consumed and the patterns in monitored input data and output data processed through one or more user interface(s) are identified will the new user interface be generated.

Put another way, in the Applicant's claimed embodiments, aggregation of web services may be achieved based on inferences from user interactions with web services (see also e.g. paragraph [0083]), and not, for example, based on explicit user-design choices performed by a party desiring to create new web services.

Stelting discloses an example of a system that facilitates aggregation based on the latter, namely user-design choices, and not based on inferences

from user interactions in the consumption (i.e. invocation) of individual web services. Stelting discloses a software application development tool, which allows developers to create new web services from existing web services. Stelting allows software applications to be created without requiring developers to develop application code completely "from scratch" or to manually package the application for use in a particular Web services platform (see e.g. Stelting, paragraph [0009]). The tool in Stelting searches for and locates existing web services, permitting developers to incorporate those elements in customizing their own new web service. The tool automatically makes the new web service available on a network, by publishing and validating the new web service (see e.g. Stelting, paragraphs [0012], [0022], [0031], [0047], etc.).

It is clear, however, that the tool disclosed in Stelting is designed for use by developers, and that the developers must provide input in order to customize and create the new web services. In Stelting, associations between web services are explicitly identified by developers using the tool, and not by providing said one or more user interfaces, wherein in use, at least a subset of said plurality of web services is invoked, nor by monitoring input data obtained and output data displayed through those one or more user interfaces (used in invoking at least a subset of web services) to identify patterns in said input data and said output data that suggest that a first web service of said plurality of web services is obtainable from output of a second web service of said plurality of web services. Furthermore, Stelting does not disclose generating a new user interface for said computing device after identifying said patterns, as required by the Applicants' amended claims.

In view of the clarifications provided above, it is respectfully submitted that Stelting does not disclose a system that comprises all of the features in the combination claimed in the independent claims. It is further submitted that Stelting also does not anticipate the subject matter of the dependent claims that

remain of record for at least the same reasons. Withdrawal of the rejections under 35 U.S.C. 102 is respectfully requested.

Rejections Under 35 U.S.C. 103

It would also be erroneous for the Examiner to suggest that it would be obvious for the skilled person to arrive at the subject matter of the independent claims in view of Stelting.

Furthermore, the Examiner rejected claims 11-12 as being unpatentable over Stelting. Applicants respectfully traverse these rejections.

In the Applicants' claimed embodiments, since the new user interface is generated after identifying patterns in the act of monitoring input data obtained and output data displayed through one or more user interfaces used to invoke at least a subset of a plurality of web services, no design choices need to be made by the user, and in fact, no user interaction at all is required to generate the new user interface beyond what a user may provide as input in the normal course of invoking web services. Not only does Stelting fail to disclose automatically generating a new user interface based on inferences made from identified patterns, but also, Stelting specifically teaches that the user must interact with the design program to create the new web service. Accordingly, in contrast to Stelting, by identifying patterns in the input data input by users and output data displayed to users in the use of at least a first user interface where at least a subset of a plurality of web services are actually invoked, if the patterns suggest that an input to one web service may be obtained by invoking another web service, a second new user interface which aggregates these web services can be automatically generated in Applicants' claimed embodiments (see also e.g. paragraph [0011] of the Applicant's description).

The Applicants respectfully submit that the cited prior art references fail to identify any need to combine web services to create new web services outside of an application or system specifically designed to allow designers to create new web services prior to their deployment. There is no recognized need that the aggregation should be implemented while monitoring actual user consumption of web services in the normal course of web service consumption, rather than through a design process facilitated by a design application such as that disclosed in Stelting. Accordingly, Stelting is but one example of a prior art system that teaches away from the Applicants' claimed embodiments¹.

As a further example of how the Applicants' embodiments are inventive over the cited prior art references, consider that the new user interface generated by the Applicants' embodiments is a result of identifying patterns arising from actual invocations of web services by the user – i.e. at "run-time". This allows much greater flexibility than the systems disclosed in the prior art, including that disclosed in Stelting. By way of illustration, consider a situation where the same first user interface is generated for two different users (e.g. at step 620 in two different iterations of method 600). Input data obtained from each user and output data displayed to each user will be monitored in each user's respective first user interface. It may be that the patterns identified in respect of each user may be different, given how each user's first user interface is actually used by the respective user. It may be that one user may not have access to all of the same web services as the other user. It may be the case that certain web services will be aggregated for one user based on his/her own use, while other different web services will be aggregated for the other user based on his/her own use. A new user interface can thus be generated, customized for each particular user, reflecting the respective user's actual consumption of web services.

¹ When the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious (*KSR International Co. v. Teleflex, Inc.*, No. 04-1350 (April 30, 2007)).


The system of Stelting would not permit such customization since web services are developed prior to "run-time" by the designer. The resultant new web service would neither reflect nor be able to adapt to each individual user's web service consumption patterns.

For the above reasons, it is respectfully submitted that the combination of features recited in the amended independent claims is not obvious in view of Stelting. It is further submitted that the subject matter of the dependent claims is also not obvious for at least the same reasons.² Withdrawal of the rejections under 35 U.S.C. 103 is requested.

In view of the foregoing clarifications, Applicants respectfully submit that each of claims 1-6, 11-12, and 15-17 is in form for allowance, and a notice to that effect is respectfully requested.

Should there be any remaining issues after this amendment, the Applicants respectfully request an interview with Examiner Recek to resolve such issues and expedite prosecution of the present application.

Respectfully submitted,
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² As the Examiner appreciates, if an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

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APPENDIX

Replacement sheets 1-7.